



Main changes made to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) for the 2013 edition

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INTRODUCTION

This report identifies what are judged to be the main changes made to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) for the 2013 edition and provides background to the changes.

Many of the changes have been instigated at UN level and have already been published in the United Nations (UN) Recommendations on the Transport of Dangerous Goods - Model Regulations - 17th Revised Edition. Thus these changes will also be incorporated into the next revisions of the International Maritime Dangerous Goods (IMDG) Code and the International Civil Aviation Organization (ICAO) Technical Instructions, meaning that industry will benefit from greater harmonisation when engaging in multimodal transport operations.

Some changes have been triggered by incidents and experience which highlighted limitations in the existing regulations. Others are prompted by updates to referenced standards or the desire to streamline and rationalise requirements and ensure greater consistency in application among the contracting parties to the agreement. In the latter context, there has been considerable change to some of the texts to make them clearer, without actually changing the requirements.

While this report follows the general sequence of the regulations, where appropriate, measures from different chapters are presented together under a heading for specific goods/topic, when the first significant changes relating to the goods/topic are encountered.

Some of the most noteworthy changes relate to:

- Specifications for the minimum size of the UN number applied to packages & overpacks
- Provisions for carriage of chemicals under pressure and ultra capacitors
- Provisions for carriage of fuels in equipment
- Provisions for use of salvage pressure receptacles
- Provisions for carriage of small quantities of lighters and lighter refills
- Provisions for “de minimus” quantities as a subset of Excepted Packages
- Category E tunnel restrictions for “large loads” of Limited Quantity packages
- Prohibition of mixed loading of Limited Quantity packages with most Class 1 explosives
- Provisions for use of dangerous goods with asphyxiant risks as cooling materials
- Extension of security provisions to Class 7 excepted packages and detonators
- Reduced high consequence dangerous good thresholds for some Class 7 radionuclides
- Limitation of the time allowed to submit accident reports to Competent Authorities
- Provision for transport of some Class 1 articles in Limited Quantity packages
- Provisions for transport of contaminated medical instruments for cleaning

CHAPTER 1

Scope and applicability - Chapter 1.1

The 'small load' exemptions in 1.1.3.6.2 have been amended to require security provisions to apply to Class 7 excepted packages of UN 2910 and 2911 if the total activity carried exceeds the A₂ value and to detonators/shaped charges in Divisions 1.1 and 1.2 of UN 0029, 0030, 0059, 0065, 0073, 0288, 0290, 0360, 0364 and 0439 irrespective of the quantity carried. The table of transport categories in 1.1.3.6.3 has been amended to take account of new entries for chemicals under pressure and capacitors.

A new subsection 1.1.3.9 has been inserted to refer to a new section 5.5.3 for requirements for dangerous goods which are used for cooling purposes and carry a risk of asphyxiation in enclosed spaces e.g. liquid nitrogen or dry ice.

Point 1.1.4.3 relating to the use of old IMO tanks has been reworded in recognition of the fact that provisions applicable up to 2009 have expired. There is no material change.

A new section 1.1.5 has been inserted to make it clear that where there is a conflict between the regulations and a mandated standard, that the regulations take precedence.

Definitions - Chapter 1.2

The definition of "maximum permissible gross mass" in relation to IBCs has been amended to now apply to all IBCs. Previously flexible IBCs were covered under a definition of "Maximum permissible load" which has now been deleted.

The definition of "pressure receptacle" has been extended to include salvage pressure receptacles.

The definition of "salvage packaging" has been amended to indicate that salvage packaging can be used to overpack non-compliant packaging.

New definitions have been added to cover "liquid petroleum gas (LPG)", "net explosive mass (NEM)" and "salvage pressure receptacles".

The definition of "Manual of Test Criteria" has been updated to include Amendment 1 to Version 5, which among other changes updates the test requirements for lithium batteries.

There are also a number of adjustments to existing definitions that are either editorial in nature or are necessitated due to issue of new editions of referenced regulations, but are otherwise without impact.

Training - Chapter 1.3

The notes in relation to general awareness training have been amended to make it clearer that this section does not apply to DGSA or ADR driver certificate holders.

Duties of Participants – Chapter 1.4

The duties of the filler have been amended to specifically include the requirements for display of elevated temperature or environmentally hazardous marks on tanks – no anticipated impact as this should already be an understood requirement.

Transitional measures – Chapter 1.6

The following transitional measures have been deleted as their transition period has now ended; 1.6.2.7, 1.6.2.8, 1.6.3.15, 1.6.3.25, 1.6.3.35, 1.6.3.37, 1.6.4.17, 1.6.4.34, 1.6.4.35. These related mainly to moving to the new system for type approval and testing of pressure receptacles and gas tanks and tanks in general.

Transitional measure 1.6.1.21 has been amended to reflect that the time allowed for competent authorities to transition to issuing credit card style ADR driver license will expire on the 31 December 2012. Existing old style licenses remain valid until their natural expiry.

Similarly transitional measure 1.6.2.11 has been reworded to just allow continued carriage of existing gas cartridges that were not assessed according to the requirements that are now fully transitioned.

New transitional measures 1.6.3.43 and 1.6.4.46 have been inserted to allow continued use of fixed tanks, demountable tanks and tank containers constructed before 1 January 2012 that do not conform to EN 14432:2006 and EN 14433:2006 standards for product discharge and air inlet valves and foot valves.

New transitional measures have been added as necessary for the introduction of new requirements. These may be found in the relevant sections of the report dealing with such requirements.

Safety adviser – Section 1.8.3

The duties of a Safety Adviser have been amended to ensure that as part of monitoring the training of employees, the DGSA must check that update training on changes to the regulations is included as appropriate.

Notification of occurrences involving dangerous goods – Section 1.8.5

A time limit of one month from the date of occurrence has now been imposed for submission of accident reports to a Competent Authority, where due to the scale of the accident reporting is mandatory.

Procedures for conformity assessment and periodic inspection – Section 1.8.7

A new subsection 1.8.7.2.5 has been added to cover modifications of pressure receptacles, tanks, battery-vehicles or MEGCs that have been type approved. The modifications must be in accordance with the requirements in place at the time of modification while the testing inspection and approval can be limited to the parts that have been modified. The Competent Authority must issue a type approval certificate covering the modification. If a series of modifications are made, approval applications should be made to the same Competent Authority

Tunnel Restrictions – Section 1.9.5

Transport units carrying more than 8 tonnes of Limited Quantities are now prohibited in a Category E tunnel. Consequently sub-section 1.9.5.3.6 had to be revised to take account of this. While the sub-section has been completely rephrased there is no change as regards the applicability of tunnel restrictions to regular dangerous goods consignments i.e. they apply to transport units that are required to display orange plates. There are consequent amendments to Chapters 3.4 and 8.6.

Security – Chapter 1.10

The definition of high consequence dangerous goods in 1.10.1.2.1 has been extended to include mass socio-economic disruption as a criterion in the case of Class 7 radioactive goods. There have been changes to the criteria for determining high consequence radioactive shipments. Activity thresholds are now applied on a per package basis where previously they applied on the basis of the quantity carried. A general activity threshold value of 3,000 A₂ (per single package) has been retained and a new table has been inserted giving specific lower thresholds for 25 named radionuclides. A₁ values for special form material or package type are no longer relevant, although in practice only type B or C packages will meet the criteria with the exception of Cobalt-60 and Selenium-75 which have security thresholds that are below the maximum activity allowed in a Type A package. A formula is also provided for the application of thresholds to mixtures of radionuclides. These changes are likely to have no impact in Ireland and minimal impact in the general nuclear industry as they are in line with established IAEA guidance. By a modification of 1.10.4, transport units carrying UN2910 and UN2911 excepted packages in quantities in excess of the A₂ value will now be subject to general security provisions of 1.10.1 and 1.10.2. The revised wording also implies that the provisions for high consequence dangerous goods in 1.10.3 apply, but this is not required as such packages can not meet the criteria for high consequence dangerous goods. UN 2912 RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) and UN 2913 RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I) are exempted from the general security provisions.

Subsection 1.10.4 is also modified to apply security provisions to detonators/shaped charges in Divisions 1.1 and 1.2, UN 0029, 0030, 0059, 0065, 0073, 0288, 0290, 0360, 0364 and 0439 as already applied to those in Division 1.4. This change was initiated by the Irish authorities.

CHAPTER 2

Classification general provisions – Chapter 2.1

Additional or modified texts have been included in subsections 2.1.1.3, 2.1.3.5 and 2.1.3.5.3 (h) to provide greater clarity without altering any of the intended requirements.

Subsection 2.1.3.5.5 on the classification of wastes has been amended to state that when the waste only possesses environmentally hazardous properties it can be assigned to packing group III under UN Nos. 3077 or 3082, which provides greater harmony with the IMDG regulations.

By amendment of 2.1.3.8 it is no longer necessary to assess Class 7 radioactive materials against the criteria for environmentally hazardous substances in 2.2.9.1.10. Consequently EHS marking or EHS

declaration in documentation is no longer applicable to class 7, as radioactive contamination is anyway regarded as a risk to the environment.

Explosives – Class 1

The glossary of terms has been moved from 2.2.1.1.8 to a new sub-section 2.2.1.4 at the end of Chapter 2.2.1. An explanation of CARTRIDGES FOR TOOLS, BLANK: UN No. 0014 has been inserted and “detonating” has been removed from the explanation of ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI).

A new subsection 2.2.1.1.8 provides criteria for exclusion of certain articles from Class 1, subject to the approval of a Competent Authority. To qualify the articles must fall within limits for generation of heat, noise, flames or smoke or projection of fragments.

Gases – Class 2

A new subdivision has been added to Class 2 in 2.2.2.1.2 to accommodate the introduction of new entries for “chemicals under pressure” – see later section of this report. Consequently a new subsection 2.2.2.1.7 defines the hazard groups applicable to “chemicals under pressure” and the hazardous properties of gases or chemicals which preclude them from carriage under these entries. The list of collective entries is extended to include six entries for chemicals under pressure.

There are also some minor amendments to take account of new versions of reference standard methods for determination of flammability and oxidizing properties of gases.

Flammable liquids – Class 3

All substances with a flash point above 35°C can now be excluded from Class 3 if they do not sustain combustion. While previously this exclusion did not apply to substances that carried a toxic or corrosive hazard, this change will have limited practical benefit as such substances will still have to be consigned according to the provisions for Class 6.1 or 8 as relevant.

The note regarding applicability of Class 3 to diesel, gasoil or heating oil has been amended to make it clear that it also applies to synthetically manufactured versions of such fuels, as for example derived from natural gas.

A new classification code, F3 has been created to specifically cover articles containing flammable liquid and includes the collective entries, UN 3269 POLYESTER RESIN KITS and UN 3473 FUEL CELL CARTRIDGES.

Oxidizing Substances – Class 5.1

The list of collective entries heading has been amended to clarify that it applies to both the substances and articles containing the substances.

Organic peroxides – Class 5.2

Three new entries have been added to the table of known organic peroxides, while the concentration ranges for Diisopropyl peroxydicarbonate in Diluent A and Di-(3,5,5-trimethylhexanoyl) peroxide with packing method OP7 have been altered.

Toxic substances – Class 6.1

There have been editorial amendments to the list of collective entries to take account of more systematic naming of some collective entries, deletion of redundant entries and use of “LC50” in place of “toxic by inhalation”.

Infectious Substances – Class 6.2

Specific provisions have been made for the transport of potentially infectious medical devices and equipment for disinfection, cleaning, sterilization, repair, or equipment evaluation by addition of a new paragraph 2.2.62.1.5.7. They are exempt from other provisions of the ADR provided they are packed in suitable packages that under normal transport conditions cannot break, be punctured or leak their contents and are marked with the words "USED MEDICAL DEVICE" or "USED MEDICAL EQUIPMENT". The packaging shall meet the general construction requirements of 4.1.1.1 and 4.1.1.2 and be capable of withstanding a 1.2 m drop test without loss of contents. This simplifies the routine practice of transporting used medical equipment to central sterilization facilities, where previously the only correct option was to use a triple layer packaging according to P650 for UN3373. The provisions are not applicable to equipment contaminated with Category A infectious material.

Corrosive substances – class 8

A new classification code CT3 has been created for corrosive substances, toxic in articles to take account of the new entry for UN 3506 MERCURY CONTAINED IN MANUFACTURED ARTICLES. The criteria for classification as corrosive have been summarised in tabular form for easier interpretation. The list of collective entries has been tidied up with a number of existing entries added to C11, articles with a corrosive risk.

Miscellaneous substances – Class 9

Lithium Batteries

The existing provisions of SP 230 regarding requirements for the construction and testing of lithium batteries have been transferred to 2.2.9.1.7. As the actual test methods for lithium batteries as set out in the Manual of Test Requirements were updated in 2011, a new transitional measure has been inserted in 1.6.1.24 to permit continued use of batteries manufactured before 1 January 2014, that were only tested to the previous requirements. Additionally this subsection now requires that batteries are manufactured under a quality management programme and defines the elements of such a programme. Although likely to be the norm, third party certification of the quality system is not essential. An explanatory note is added to provide guidance for selecting the correct entry where lithium batteries are fitted in vehicles and equipment – a vehicle powered only by a lithium battery should be assigned to UN 3171 BATTERY-POWERED VEHICLE, a hybrid vehicle based on a lithium battery power source should be assigned to UN 3166 vehicle entries, while equipment powered by lithium batteries should be assigned to UN 3481 or UN 3091 lithium battery entries.

Electric Double Layer Capacitors

A new entry for UN 3499 CAPACITOR double layer with a capacity greater than 0.3 Wh has been added to 2.2.9.1.14 and the list of Class 9 collective entries in 2.2.9.3.

The note to 2.2.9.1.14 has been amended to provide cross references to a new section 5.5.3 for asphyxiant cooling gases and the guidance note to 2.2.9.1.7 regarding the selection of an appropriate UN number for battery powered vehicles.

CHAPTER 3

Dangerous goods list – Chapter 3.2

As usual there have been considerable changes to the dangerous goods list, including the addition of 10 new UN numbers and various changes to existing entries as detailed in the following paragraphs.

New entries

Chemicals under pressure

Six new entries for chemicals under pressure have been created in response to industry needs. Manufacturers in the United Kingdom, the United States of America, Australia, Canada and other countries have already been supplying, adhesives, coatings and cleaning agents in pressurised gas receptacles for ready-to-use spray application as illustrated.



To more specifically address the requirements for these systems the following collective UN entries have been added.

UN 3500 CHEMICAL UNDER PRESSURE, N.O.S.

UN 3501 CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.

UN 3502 CHEMICAL UNDER PRESSURE, TOXIC, N.O.S

UN 3503 CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.

UN 3504 CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.

UN 3505 CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.

They can be packed according to a new P206 packing instruction in cylinders or pressure drums. This includes non-refillable pressure receptacles up to a maximum capacity of 50 L. The existing P206 has been renumbered as P208. T50 has been amended to also permit carriage in portable tanks. New

special provision 659 has been inserted against these entries to make it clear that they can not be used with substances that require exclusion of air from the vapour space, while new TP 40 clarifies that spray equipment should not be connected to portable tanks during carriage.

Mercury

A new entry **UN 3506 MERCURY CONTAINED IN MANUFACTURED ARTICLES** has been added to specifically cover such articles as Class 8 corrosive, toxic items. New special provision 366 clarifies that this entry only applies to manufactured articles containing more than 1 kg of mercury while the equivalent special provision 599 which appeared against UN 2809 MERCURY has been deleted. Limited quantity provisions can now apply up to 5 kg per article. A new packaging provision PP90 has been added to P003 to require that the articles are packed in puncture resistant leak proof inner liners or bags that can prevent escape of mercury. A new special provision 365 has been added to UN 2809 MERCURY to direct the user to the new entry for mercury in articles. A toxicity sub risk is now also assigned to UN 2809 MERCURY, with consequent addition of CV 13 and CV 28 for clean-up of spillages and precautions with regards food and feed, and changes to classification codes and hazard identification number.

Electric double layer capacitors

A new Class 9 entry **UN 3499 CAPACITOR** has been created for double layer capacitors with storage capacity greater than 0.3 Wh. New special provision 361 identifies requirements for their construction, marking and carriage.

Other new entries

A new entry **UN 3497 KRILL MEAL** has been created for this material as a self reactive substance of Class 4.2, packing group II or III. Krill meal has been added to special provision 300, thus limiting its loading temperature.

A new entry **UN 3498 IODINE MONOCHLORIDE, LIQUID** has been added specifically for the liquid version of this material which adopts all the provisions of the existing UN 1792 IODINE MONOCHLORIDE entry. The existing entry UN 1792 can now only be used for iodine monochloride solid with consequent changes to its proper shipping name, classification code, packaging instructions, mixed packaging provisions and tank codes.

Changes to proper shipping names

The following proper shipping names have been changed to maintain a consistent order of indicating the form before the hazard.

3276 NITRILES, LIQUID, TOXIC, N.O.S.

3278 ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.

3282 ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.

3439 NITRILES, SOLID, TOXIC, N.O.S.

3464 ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.

3467 ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.

The proper shipping name **CARTRIDGES FOR TOOLS, BLANK** has been added to UN 0014 as an alternative to the existing CARTRIDGES, SMALL ARMS, BLANK to provide a precise identification of such items.

Deletion of Entries

The entries for UN Nos. 3492 and 3493 TOXIC BY INHALATION LIQUID, CORROSIVE, FLAMMABLE, N.O.S. have been deleted as they were effectively a duplication of the entries 3488 and 3489 TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S., with just the subsidiary risks in the proper shipping name inverted and no criteria for choosing one over the other .

The packing group I entries for UN 1169 EXTRACTS, AROMATIC, LIQUID, UN 1197 EXTRACTS, FLAVOURING, LIQUID, UN 1266 PERFUMARY PRODUCTS, UN 1286 ROSIN OIL, and UN 1287 RUBBER SOLUTION have been deleted.

Miscellaneous Changes

The entries for cartridges of UN Nos 0012, 0014 and 0055 have been amended to permit use of limited quantity packages containing up to 5 kg per inner package. New special provision 364 has been inserted to stipulate that the packages must be capable of passing the test in accordance with Test Series 6(d) of Part I of the Manual of Tests and Criteria as determined by the competent authority.

UN 2590 WHITE ASBESTOS may now be packaged in limited quantities up to a limit of 5 kg per inner package.

The following chlorosilanes can no longer be shipped as excepted packages: UN Nos.

1162 DIMETHYLDICHLOROSILANE,
1196 ETHYLTRICHLOROSILANE,
1250 METHYLTRICHLOROSILANE,
1298 TRIMETHYLCHLOROSILANE,
1305 VINYLTRICHLOROSILANE,
1724 ALLYLTRICHLOROSILANE, STABILIZED,
1728 AMYLTRICHLOROSILANE,
1747 BUTYLTRICHLOROSILANE,
1753 CHLOROPHENYLTRICHLOROSILANE,
1762 CYCLOHEXYLTRICHLOROSILANE,
1763 CYCLOHEXYLTRICHLOROSILANE,
1766 DICHLOROPHENYLTRICHLOROSILANE,
1767 DIETHYLDICHLOROSILANE,
1769 DIPHENYLDICHLOROSILANE,
1771 DODECYLDICHLOROSILANE,
1781 HEXADECYLDICHLOROSILANE,
1784 HEXYLTRICHLOROSILANE,
1799 NONYLTRICHLOROSILANE,
1800 OCTADECYLTRICHLOROSILANE,
1801 OCTYLTRICHLOROSILANE,
1804 PHENYLTRICHLOROSILANE,
1816 PROPYLTRICHLOROSILANE,
1818 SILICONE TETRACHLORIDE,

2434 DIBENZYLDICHLOROSILANE,
2435 ETHYLPHENYLDICHLOROSILANE,
2437 METHYLPHENYLDICHLOROSILANE,
2985 CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.,
2986 CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.,
2987 CHLOROSILANES, CORROSIVE, N.O.S.,
3361 CHLOROSILANES, TOXIC, CORROSIVE, N.O.S. and
3362 CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.

Small cylinders of the compressed gases argon (UN 1006) and helium (UN 1046) may now be carried according to the special provision 653 which previously just applied to packaging and marking of small cylinders of nitrogen and carbon dioxide. Special provision 653 has been amended accordingly to include the two new gases with additionally a minor change to the pressure limit value.

New tank testing provision TT10 has been inserted against UN 1008 BORON TRIFLUORIDE, UN 1017 CHLORINE, UN 1048 HYDROGEN BROMIDE ANHYDROUS, UN 1050 HYDROGEN CHLORIDE, ANHYDROUS, UN 1053 HYDROGEN SULPHIDE and UN 1079 SULPHUR DIOXIDE to indicate that ADR tanks for such substances must be subjected to full periodic inspection every 2.5/3 years. This does not represent a change in actual requirements, just an effort to make the specific testing frequency for such tanks more visible.

Special provision 655, which provides exemptions for cylinders used for breathing apparatus, has been added to UN 1072 OXYGEN, COMPRESSED, UN 1956 COMPRESSED GAS, N.O.S. and UN 3156 COMPRESSED GAS OXIDIZING, N.O.S.

UN 0331 EXPLOSIVE, BLASTING, TYPE A may now be carried in S2.65AN(+) ADR tanks subject to provisions TU3 TU12 TU41 TC8 TA1 TA5. TU 41 is a new tank provision which effectively requires approval from each Competent Authority where the substance is intended to be carried in such tanks and also requires adoption of measures to prevent caking of the substance. TC8 allows tanks shells to be constructed of aluminium.

UN 1081 TETRAFLUROETHYLENE, STABILIZED may now be carried in a PxBN(M) ADR tank subject to tank provisions TU40, TA4 and TT9. TU40 is a new tank provision which means that only a tank with seamless receptacles can be used.

UN 1402 CALCIUM CARBIDE packing group I material may now be transported in a S2.65AN(+) ADR tank subject to tank provisions TU4 TU22 TM2 TA5. As calcium carbide is mainly used for desulphurisation of steel it is unlikely to be of significant benefit in Ireland.

UN 2381 DIMETHYL DISULPHIDE has now been assigned a subsidiary toxicity hazard with consequent changes to classification codes, labels, packaging and tank instructions. New tank special provision TP 39 and transitional measure 1.6.4.44 allows the continued use of T4 tanks until **31 December 2018**, while transitional measures 1.6.3.42 (fixed & demountable tanks) and 1.6.4.45 (tank containers) permits the continued use of the existing ADR tank codes with this substance up until the same date.

The portable tank special provisions for **UN 3129 WATER REACTIVE LIQUID, CORROSIVE, N.O.S.** and **UN 3148 WATER REACTIVE LIQUID, N.O.S.** have been standardised across all packing groups i.e. the degree of filling must be in accordance with TP2 and air shall be eliminated from the vapour space by nitrogen or other means. The portable tank instruction for UN 3148 WATER REACTIVE LIQUID,

N.O.S. packing group I has been changed from T9 to T13. New TP38 and transitional measure 1.6.4.44 allows the continued use of T9 tanks until **31 December 2018**.

Special provision 601, which provides exemptions for medicines packaged for retail sale, has been added to UN 3175 SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. and UN 3243 SOLIDS CONTAINING TOXIC LIQUID, N.O.S.

UN 3256 ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S has been split into two entries so as to specify use of the elevated temperature mark when carriage is above 100°C.

The classification codes for UN Nos. 3269 POLYESTER RESIN KIT and 3473 FUEL CELL CARTRIDGES have been updated in accordance with the new specific code for flammable liquids in articles.

Special provisions – Chapter 3.3

Lithium batteries

Special provision 188 has been amended to incorporate the provisions that were previously found in special provision 656 which allowed for the use of lithium batteries that are intentionally active in transport. Consequently SP 656 has been deleted. Batteries manufactured before 1 January 2009 without a watt hour marking can still be carried under SP 188. SP188 is also amended to reference the new location where the requirements for lithium batteries are specified. i.e. 2.2.1.9.7 instead of SP 302, which has also been reworded to also refer to this section.

Special provision 636 (b) has been reworded to clarify that the exemptions for collection of lithium batteries can apply to all transport to an intermediate processing facility, not just from consumer collection points.

New special provision 661 has been inserted against the entries for lithium batteries to address the transport of damaged lithium batteries (as distinct from waste lithium batteries). Competent Authorities can define the requirements for such consignments and a copy of or reference to Competent Authority approval must accompany the load.

New special provision 360 has been added against the entries for lithium batteries in/with equipment (UN 3091 and UN 3148) to indicate that vehicles powered only by such batteries must be assigned to UN 3171 BATTERY POWERED VEHICLE.

Special provision 328 has been amended to require that when a fuel cell system also contains lithium batteries it must be consigned under appropriate fuel cell and lithium battery entries for such items in or packed with equipment.

Carriage of fuels in machinery or equipment

New special provision 363 has been created to address the carriage of fuels in machinery or equipment such as generators, compressors or heating units, in quantities above the Limited Quantity thresholds and that can not avail of the exemptions of 1.1.3.3 (a) or (b). The containment must be in compliance with any relevant construction requirements of the country of manufacture, all valves must be closed during carriage and the machinery must be oriented and secured to prevent leakage. If the capacity is greater than 60 L and not more than 450 L the machinery or

equipment should be labelled on one outer surface, if more than 450 L and not more than 1,500 L labelling on four sides is required. If greater than 1,500 L then placards must be displayed on the four sides and a transport document is required with the additional statement "Carriage in accordance with Special Provision 363" also included. These provisions apply to equipment powered by fuels of UN nos. 1202 Diesel, 1203 Petrol, 1223 Kerosene, 1268 Petroleum distillates, 1863 aviation fuel and 3475 ethanol petrol mixtures. New equipment manufactured after **30 June 2013** must comply with the construction requirements – existing equipment can continue to be used.

Exemptions for lighters and lighter refills

New special provision 658 has been inserted against UN1057 LIGHTERS or LIGHTER REFILLS to enable them to be transported under a variant of the Limited Quantity exemptions. The variations are that the package weight is limited to 10 kg rather than the standard 30 kg for a combination package, the quantity per vehicle is restricted to 100 kg and the packages are marked with "UN1057 LIGHTERS or LIGHTER REFILLS" instead of the limited quantity mark. This represents a relaxation that should simplify the distribution of such articles to retail outlets.

Miscellaneous Special Provision Changes

Special provision 239, which applies to UN 3292 BATTERIES CONTAINING SODIUM, has been amended to include all sodium sulphur or sodium compound batteries.

SP 272 has been amended to include a reference to UN 0150, the Class 1 alternative to shipping pentaerythrite tetranitrates as desensitised explosives of UN 3344 – no change just greater clarity.

Special provision 296, relating to UN Nos. 2990 and 3072 LIFE SAVING APPLIANCES has been amended, a) to include liquefied gases, and b) to exclude such articles from the provisions of ADR if packed in strong outer packaging of maximum gross mass 40 kg, with compressed or liquefied oxidizing or asphyxiant gases as the only dangerous goods.

Special provision 500 has been renumbered as SP 358 due to incorporation of the existing mode specific (ADR) provision into the UN Model Regulations.

New special provision 359 has been inserted against UN3064 NITROGLYCERIN SOLUTION IN ALCOHOL to clarify that if all the conditions of P300 are not met, then it must be shipped as a Class 1 explosive rather than as a desensitised explosive.

New special provision 657 has been inserted against UN Nos. 1011 BUTANE, 1969 ISOBUTANE and 1978 PROPANE to clarify that these entries should only apply to the technically pure substances. UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. or UN 1075 PETROLEUM GASES, LIQUEFIED should be used for mixtures of these gases.

New special provision 660 has been inserted against UN Nos. UN Nos. 1011 BUTANE, 1049 HYDROCARBONS COMPRESSED, 1075 PETROLEUM GASES, LIQUEFIED, 1954 COMPRESSED GAS, FLAMMABLE, N.O.S., 1965 HYDROCARBON GAS, MIXTURE, LIQUEFIED, N.O.S., 1969 ISOBUTANE, 1971 NATURAL GAS, COMPRESSED and 1978 PROPANE to define the requirements for carriage of fuel gas containment systems designed to be fitted in motor vehicles containing these gases.

Limited Quantities – Chapter 3.4

By inclusion of a reference to a new subsection 7.5.2.4 mixed loading of Limited Quantities with Class 1 explosives other than those of division 1.4 and UN Nos. 0161 POWDER SMOKELESS and 0499 PROPELLANT SOLID is now prohibited.

Subsection 3.4.2 has been amended to include reference to the additional special packaging requirements for Class 1 that will still apply to Limited Quantity packages of explosives.

Subsection 3.4.13 has been amended to permit that where a transport unit is carrying Limited Quantities above the threshold for limited quantity vehicle marking and regular dangerous goods above the threshold for orange plate marking, either orange plates alone or orange plates and limited quantity marks can be displayed.

Excepted Quantities – Chapter 3.5

A new subsection 3.5.1.4 has been created to provide further exemptions for “**de minimus**” quantities as a subset of Excepted Packages. If dangerous goods assigned to codes E1, E2, E4 and E5 are packed in excepted quantity packaging containing not more than 1 ml or g per inner packaging and not more than 100 ml or g per package, then they are completely exempt from any marking or documentation requirements.

CHAPTER 4

Packing provisions - Chapter 4.1

General Packaging Requirements

A new subsection 4.1.1.16 has been inserted to require that where ice is used as a coolant it shall not affect the integrity of the packaging.

A new subsection 4.1.1.20 has been inserted to address the use of salvage pressure receptacles.

There has been a consequent renumbering of other subsections including the chemical compatibility tables which are now found in 4.1.1.21.

Packing Instructions

P200

The following amendments have been made to P200. ISO 9162:1989 has replaced EN 1440 as the reference standard for limitations on corrosiveness and is also referenced as a method to demonstrate that LPG is of the required quality for filling. Similarly EN ISO 11372:2011 for filling conditions and filling inspection of Acetylene cylinders has replaced EN 1801 and EN 12755. By insertion of special provision “a”, aluminium cylinders are now prohibited for use with UN Nos. 1008 BORON TRIFLUORIDE , 1052 HYDROGEN FLUORIDE, ANHYDROUS, 1076 PHOSGENE, 1741 BORON TRICHLORIDE, 1859 SILICON TETRAFLUORIDE, 2189 DICHLOROSILANE AND 2418 SULPHUR TETRAFLUORIDE. There are also some editorial adjustments.

P207 Aerosols

A new packaging instruction P207 have been created for the packing of UN 1950 aerosols. The significant change is that UN approved packaging must now be used for fibreboard packages of net mass greater than 55 kg or packages greater than 125 kg net mass if using other packaging materials. However as most aerosols are shipped as limited quantities for retail distribution, this is likely to have minimal impact in Ireland. Consequent amendments have been made to the dangerous goods list entry and P003. UN 2037 gas cartridges are not affected.

Miscellaneous packing instruction changes

Many packaging instructions have been amended to permit the use of tight head drums and jerricans as outer packagings in combination packages and/or to expand the use of metals other than steel or aluminium as a packaging material. Such changes are reflected in updates of P001, P002, P010, P111, P112(a), P112(b), P112(c), P113, P114(a), P114(b), P115, P116, P130, P131, P132(a), P132(b), P133, P134, P135, P136, P137, P138, P140, P141, P142, P143, P144, P400, P403, P404, P405, P406, P410, P501, P502, P503, P504, P520, P601, P602, P800, P802, P803, and P804.

The following packaging instructions have also been amended to permit greater use of wood as a material for packing explosives: P111, P112(a), P112(c), P114(a), P114(b), P115, P132(b), P137, P140, P143 and P144.

Where relevant, amendments have been made to packaging instructions, to specify the packaging codes that can be used for single packaging or outer packaging for combination packages. Packing instructions P004, P201, P302, P401, P402, P407, P408, 411, P500, P620, P621, P901, P902, and P903 are so amended. These amendments are intended to provide greater clarity of interpretation rather than requiring any substantial change.

A maximum periodic inspection interval for the pressure relief valves of closed cryogenic receptacles has been set at five years by addition of a new requirement to P203.

Amendments have been made to P650 and P904 to provide a reference to requirements on asphyxiant warnings, if dry ice or liquid nitrogen is used as coolant.

Existing P206 has been renumbered as P208 to accommodate the new P206 for chemicals under pressure.

IBC520: Diisobutryl peroxide dispersions $\leq 42\%$ in water have been added to the list of Type F organic peroxides that can be carried in IBCs according to IBC520 under temperature control. The concentration of Di-(3,5,5-trimethylhexanoyl) peroxide in diluent A that can be shipped in IBCs has been increased from 38 to 52%, while composite IBCs may now be used for 1,1,3,3-Tetramethylbutyl peroxyneodecanoate.

A new L3 has been inserted in LP2 to clarify that this packing instruction can not be used for sea transport of UN 2286 PENTAMETHYLHEPTANE and UN 3486 CALCIUM HYPOCHLORITE, MIXTURE, DRY, CORROSIVE.

There are some editorial adjustments to LP902 without any substantial change.

There are consequential adjustments to some class specific special provisions in 4.1.5 and 4.1.6 as a result of the adoption of tight head outer packaging, the introduction of chemicals under pressure and definition of the periodic inspection interval for the pressure relief valves of closed cryogenic receptacles.

There have been some amendments to the table of reference standards in 4.1.6.15.

Chapter 4.2 – use of portable tanks

The maximum filling ratio for UN 3220 PENTAFLUROETHANE in a T50 tank has been reduced from 0.95 to 0.87.

The introduction of the new entries for chemicals under pressure has resulted in a number of consequential amendments.

There are also some minor editorial and terminology changes.

Chapter 4.3 – use of ADR tanks

UN 1075 PETROLEUM GASES, LIQUEFIED and UN 1081 TETRAFLUROETHYLENE, STABILIZED have been added to the pressure table for gases in 4.3.3.2.5.

A new subsection 4.3.3.3.4 has been inserted to require measures to be taken to avoid deformation due to external overpressure when carrying low pressure liquefied gases, as could be a risk where low ambient temperatures are experienced.

UN 0331 EXPLOSIVE, BLASTING, TYPE B and UN 1402 CALCIUM CARBIDE, packing group I in S2.65AN tanks have been added to the list of entries subject to special provisions according to 4.3.4.1.3.

There are also minor editorial modifications, some necessitated by the carriage of explosives in tanks, plus changes to terminology for “breather device” instead of “venting system” and “device protecting against the propagation of a flame” instead of “flame trap”. Otherwise they are without significance.

Chapter 4.5 – vacuum operated waste tanks

Subsection 4.5.2.2 has been reworded to make it clear that the precautions for flammable liquids apply irrespective of whether flammability is a predominant or secondary hazard.

CHAPTER 5

Overpacks - Chapter 5.1

Sub-section 5.1.2.1 (a) ii has been amended to require that, where applicable, the environmentally hazardous mark is displayed on overpacks and UN number marks conform to the new size requirements for packages – see next point.

Marking – Chapter 5.2

By amendment of subsection 5.2.1.1 the minimum dimensions for marking of packages are now specified.

Package capacity > 30 L or kg or cylinders >60 L 12 mm high

Package capacity ≤ 30 L or kg or cylinders ≤ 60 L 6 mm high

Packages capacity ≤ 5 L or kg an appropriate size

Transitional measure 1.6.1.25 permits packages not marked according to these specifications to be used until **31 December 2013**. Cylinders ≤ 60 L with non conforming marks may continue to be used until the next periodic inspection or **30 June 2018**, whichever comes first.

Subsection 5.2.1.3 on the marking of salvage packaging has been amended to take account of the adoption of salvage pressure receptacles.

An explanatory note has been added to 5.2.1.8.3 to make it clear that the normal class hazard labels are required irrespective of whether the environmentally hazardous mark is used.

Subsection 5.2.1.9.2, which deals with exceptions from the requirement to apply orientation marks, has been reworded for greater clarity without any substantial change.

Subsection 5.2.2.1.2 on the use of “banana” labels for gas cylinders has been modified to incorporate the environmentally hazardous mark where applicable.

Plates – Chapter 5.3

Subsection 5.3.1.7.3 has been amended to clarify that if placards on small containers or tanks of radioactive material are not visible from outside the vehicle, then placards must be shown on the sides and rear of the vehicle.

A new paragraph has been added to subsection 5.3.2.1.1 to make it clear that if a trailer is detached from the tractor unit during transport (e.g. on a ferry) the orange plate at the rear of the trailer must remain attached/on display.

Hazard identification numbers 28 gas, corrosive and 238 gas, flammable corrosive have been added to the list in 5.3.2.3.2.

Documentation – Chapter 5.4

Subsection 5.4.1.1.5 on special provisions for salvage packaging has been amended to accommodate the adoption of salvage pressure receptacles.

Subsection 5.4.1.1.18 on additional information for environmentally hazardous substances has been amended to allow the use of “MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS” as the inscription on a road transport document. This should enable a common description to be used by an operator who consigns some shipments for road transport only and others that involve a sea leg where the use of the term “marine pollutant” is mandatory.

There have been some adjustments to the terminology in the footnote dealing with container /vehicle packing certificates, without any significance.

Asphyxiation Risk – Chapter 5.5

Similar to the section that was previously added for fumigated units, a new self-contained section 5.5.3 has been created to deal with asphyxiation risks associated with the use of dry ice (UN 1845), liquid nitrogen (UN 1977) or liquid argon (UN 1951) as coolants. The section applies when the materials are being used as coolants as distinct from when they are the actual cargo. As coolants they are exempt from other provisions of the ADR provided all the requirements of the section are complied with. Packages must be marked with the proper shipping name of the material followed by the words "AS COOLANT" or "AS CONDITIONER" e.g. CARBON DIOXIDE, SOLID, AS COOLANT. Vehicles and containers must be marked at each access point with a new warning symbol which must also show the identification of the coolant.



Documentation accompanying the load just needs to identify the coolant used as for example UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT.

CHAPTER 6

Packaging Construction –Chapter 6.1

Boxes of metal other than steel or aluminium have been added to the list of codes in 6.1.2.7 and the requirements for metal boxes in 6.1.4.14.

A note has been inserted to explain that the UN symbol may also be used on flexible bulk containers, a containment system that has been introduced to sea transport, but is not permitted under ADR.

Pressure Receptacle Construction – Chapter 6.2

There are some consequential amendments to text to accommodate the introduction of chemicals under pressure and the requirements for periodic inspection of pressure relief valves on closed cryogenic receptacles, as detailed earlier in the report.

New or updated ISO standards have been added to the table for service equipment and periodic inspection of UN pressure receptacles in 6.2.2.3 and 6.2.2.4 – updated ISO 11117 on valve protection caps and guards, new ISO 13340 on cylinder valves for non refillable receptacles and new ISO 10460 on testing and inspection of welded carbon steel receptacles.

A new subsection 6.2.3.9.7 has been inserted to specify requirements for marking of the frame of bundles of non-UN cylinders.

Salvage pressure receptacles

A new section 6.2.3.11 has been inserted to formally recognise and specify requirements for salvage pressure receptacles. This was an initiative supported by the European Industrial Gases Association as such receptacles are already available under national provisions for transporting damaged cylinders – see examples below. A new transitional measure has been inserted in 1.6.2.12 to permit construction of salvage receptacles according to national provisions up until **31 December 2013**. They may continue in use subject to national provisions after that day.



Non-UN receptacles constructed according to standards – Section 6.2.4.

There are a number of changes to the table of relevant standards (6.2.4.1), which are mandatory for design construction and testing of non-UN pressure receptacles. EN 1964 Parts 1 & 2 (steel cylinders), EN 1975 (aluminium cylinders) and EN 13769 (bundles of cylinders) are being phased out and replaced by EN ISO standards. EN 12205 (composite cylinders) and EN 13110 (refillable welded aluminium LPG cylinders) has been updated to new versions. The EN standards for self-closing and manual LPG cylinder valves are being replaced by EN ISO standards. New EN ISO standards have been introduced for bundles of cylinders and non-refillable cylinder valves

New standards have been introduced in 6.2.4.2 for periodic inspection and test of refillable LPG cylinders and cylinder valves – these are mandatory from **1 January 2015**.

Gas Cartridges – Section 6.2.6

The reference standard EN 417 for construction inspection and test of gas cartridges of liquefied petroleum gases has been updated to a newer version.

IBCs –Chapter 6.5



Minimum dimensions of the stacking mark ( or ) are now specified at 100 x 100 mm.

A note has been inserted to explain that although parties conducting periodic tests on IBCs put into service in other countries do not have to be recognised by the authority that approved the IBC, the tests must be in accordance with the requirements of the approval certificate.

Large Packagings – Chapter 6.6

The requirements for stacking marks and minimum dimensions of packaging marks applicable to IBCs have now been extended to large packagings. Transitional measure 1.6.1.26 allows until **1 January 2014** to comply with the size specification on new packaging markings and until **1 January 2015** to adopt the stacking symbol. Existing large packagings may continue to be used, unless they are re-manufactured, in which case the new requirements should be implemented.

UN Portable Tanks & MEGCs – Chapter 6.7

A new clause has been added to 6.7.2.13.1, 6.7.3.9.1, 6.7.4.8.1 and 6.7.5.6.1, which requires that the cross sectional flow area of pressure relief devices is marked on the devices, where practicable. A new transitional measure 1.6.4.43 excluded valves manufactured before **1 January 2014** from this requirement.

New versions of standards are referenced for determining the flow capacity of spring loaded pressure relief devices.

There are some amendments to text in section 6.7.3 necessitated by the introduction of the entries for chemicals under pressure.

ADR Tanks – Chapter 6.8

Specifications for Austenitic-ferritic stainless steels have been added to table for minimum shell thickness in 6.8.2.1.19.

A footnote has been added to 6.8.2.1.20 to explain that equivalent methods for protection against damage means measures given in referenced standards.

A new paragraph has been added to 6.8.2.3.1 to explain that Competent Authorities can issue separate approval certificates for valves and other service equipments constructed to standards, which can then be taken into account when assessing a complete tank.

A new section 6.8.2.3.4 has been inserted to cover type approval of modified tanks. The changes must be in accordance with the requirements applicable at the time of modification, a type approval certificate need only address the modified elements, while the original type approval remains valid for the remainder of the tank. If multiple modifications occur they should be approved by a single competent authority.

The text in 6.8.2.5.2 has been reworded to provide greater clarity on the requirements for marking tanks and in particular establishing more specific requirements in relation to demountable tanks – the marking of demountable tanks is now almost identical to ADR tank containers. By insertion of new transitional measures 1.6.3.41 (fixed & demountable tanks) and 1.6.4.42 (tank containers) the new marking requirements do not have to be adopted until the next periodic inspection after **1 July 2013**.

New amendments of referenced standards for design and testing in 6.8.2.6 have been introduced for EN 12493 (LPG tanks) and EN 13082 (vapour transfer valves for petrol/flammable liquid tanks).

Subsection 6.8.3.2.3 has been reworded to only cover the testing frequency of tanks for refrigerated liquefied gases as the specific requirements for UN 1008 BORON TRIFLUORIDE, UN 1017 CHLORINE, UN 1048 HYDROGEN BROMIDE ANHYDROUS, UN 1050 HYDROGEN CHLORIDE, ANHYDROUS, UN 1053 HYDROGEN SULPHIDE and UN 1079 SULPHUR DIOXIDE are now found in new in TP10.

New tank special provision TA5 has been created to make it clear that UN 1402 CALCIUM CARBIDE packing group I material may only be transported in a S2.65AN(+) ADR tank.

Reference to an EN standard for training personnel conducting magnetic particle inspections has been added to TT 8 which applies to testing of tanks for UN 1005 AMMONIA, ANHYDROUS.

There are also some editorial and terminology amendments that do not represent substantial change.

MEMUs – Chapter 6.12

The requirements for bursting disks/pressure relief devices in 6.12.3.1.2 and 6.12.3.2.2 have been reworded so that they only apply to tanks for ammonium nitrate UN 1942 or 3375, not for the fuel oil. Also it is the Competent Authority of the country of use that must now approve the bursting discs. New transitional measure 1.6.5.14 allows continued use of tanks approved before **1 July 2013** according to the previous requirements.

CHAPTER 7

Prohibition of LQ with Class 1

A new 7.5.2.4 has been inserted to prohibit the mixed loading of dangerous goods packed in Limited Quantities with any type of explosive substances and articles, except those of Division 1.4 and UN Nos. 0161 and 0499.

Other changes

VV15 which permits materials (wastes) containing low levels of polychlorinated biphenyls (PCBs) or polyhalogenated biphenyls (PHBs) to be transported in bulk, has been modified to limit the peak concentration that can be present in any part of the material to 1%.

7.4.1 concerning the provisions for carriage in tanks has been amended/corrected to include tanks covered by provisions for use in chapters 4.4 (fibre reinforced, demountable & tank containers) and 4.5 (vacuum operated waste tanks).

7.5.7.1 Compliance with EN 12195-1:2010 may now be used as a means of ensuring that cargo is adequately secured.

7.5.7.4 has been amended to clarify that requirements for loading, stowage and unloading apply equally to tank-containers, portable tanks and MEGCs carried on vehicles.

CHAPTER 8

The requirements for fire extinguisher capacity for different weights of vehicle are now presented in tabular form to make them easier to interpret – there is no change to the actual requirements.

The requirements for specialist training for class 1 and Class 7 have been deleted from S1 and S11 respectively as they are already established in Chapter 8.2.

S 3 covering fire extinguisher requirements for Class 6.2 has been reworded to match the new tabular form for extinguisher requirements – there is no change in actual requirements – a single 2 kg extinguisher is still sufficient.

LQ in Category E tunnels

By amendment of 8.6.4 transport units which are required to display limited quantity placards when carrying limited quantity packages are prohibited from using a Category E tunnel. A note is also inserted to explain that if limited quantity placards are only displayed (on containers) to comply with IMDG requirements, the tunnel restriction does not apply.

CHAPTER 9

There have been editorial corrections to include reference to MEMUs in the definitions of AT vehicles and ADR approval.

EN 15207:2006 has been added to the reference standards for electrical connectors.

EX/III Vehicle fire protection

A new Section 9.7.9 has been inserted to require that EX/III vehicles carrying tanks are equipped with automatic fire extinguisher systems for the engine compartment and the load is protected from tyre fires by metal thermal shields. As no specific transitional measure has been inserted, the standard six-month transitional period will apply. However, as no such vehicles are currently approved in Ireland, this should have no impact on Irish operations.